Proposed Report on

BARAWA BIODIVERSITY PARK

Western Province – Sri lanka

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1. INTRODUCTION

The recent economic meltdown has brought into sharp focus the many shortcomings connected with Globalization and its impacts worldwide. Other major crisis such as the global environmental problem of global warming and related climate change, illustrate the problems connected with today's consumer driven society. The goal of many of the less developed countries today is to achieve the lifestyle and standards of living of the western world. The western lifestyle is one which relies a great deal on the use of natural resources. Arguably this is not a system that could be sustained in the long term. As Mahatma Gandhi once remarked, if all the people in India were to adopt the lifestyle of those in the United Kingdom, we would need not one but two planets. It is clear that planet earth holds sufficient resources for all of mankind's needs, but it does not have sufficient resources for man's greed. It is clear that if the world is to avoid a major catastrophe in the near future, man has to adopt a different lifestyle which is less resource intensive and therefore places less pressure on the earth's limited natural resources.

The recent economic crisis also clearly illustrated the importance of food security for countries. Many countries which had adopted a policy of rapid industrialization at the expense of agriculture found themselves depending on outside countries for their staple food such as rice. The crisis clearly illustrates the dire need for countries to be self-sufficient in food. Environmental crisis such as the much talked about Global Warming and Climate Change which are taking center stage today; clearly illustrate the need to adopt more environmentally friendly lifestyles as well as environmentally benign agricultural methods.

While the world today is getting together in order to solve the major environmental problems facing it, the current policy in many countries is to "pollute and clean up later" rather than prevent pollution occurring in the first place. Even in the case of Global Warming which is the most serious global environmental problem facing the world today, the solutions that are being discussed are more cosmetic rather than getting into the crux of the problem, which is the consumer driven lifestyles which are fast being adopted by even the so called developing countries. The solution to Climate Change in the long term lies in changing people's attitudes and way of life. Today's consumer driven societies place a very heavy burden on the earth and its limited resources. It is time that we realize that there are limits to growth and that sustainability criteria is an essential part of economic growth. Environmental factors have to be factored in rather than the blind adoption of western style of growth focusing mainly on GDP.

The solution therefore, is to slowly but surely change people's mindset and get them to adopt a less consumer oriented lifestyle.

We in Sri Lanka are lucky that we inherit a culture and traditions which dates back to over two thousand five hundred years. We are also fortunate to be born into a country where Buddhism reigns supreme. Buddhism is a religion which consistently endorses the value of adopting a simple lifestyle and which also advices its followers to respect and protect the environment. In such a background it is easier to convince people that the path that we are trying to follow in the name of development is in fact a path which is very harmful to the environment and ourselves in the long run.

1.1 HOW MUCH BIODIVERSITY IS THERE AND WHERE IS IT FOUND?

Biodiversity is the term given to the variety of life on earth and the natural pattern that it forms. The biodiversity we see today is the fruit of billions of years of evolution, shaped by natural processes and increasingly, by the influence of humans. it forms the web of life of which we are an integral part and upon which we so fully depend. But this valued biodiversity of earth is threatened by our own activities.

The distribution and magnitude of the biodiversity that exists today is a product of over 3.5 billion years of evolution, involving speciation, migration, extinction and more recently human influence. The current distribution and magnitude of biological diversity can be viewed at three levels; the diversity of ecological communities, species diversity, and genetic diversity.

Inadequate knowledge of the diversity of ecological communities

An ecosystem is a community of organisms and their environment which functions as an integrated unit. Forests are ecosystems, so are rotting logs, ponds, rivers, rangelands, whole mountain ranges, and indeed the planet itself. Ecosystems occur at many different scales ranging from micro-sites to the biosphere, and species composition, structure and function within them changes continually over time. Ecosystems may grade into one another or be nested within a matrix of larger ecosystem units.

Ecosystems are frequently delineated along boundaries that correspond to variations in the physical environment-such as soil types, climate and elevation, and variation in faunal and floristic composition. Various classification systems have been devised, each of which defines bio-regions or ecosystems somewhat differently, but which also recognize many broad similarities. Since ecosystems are often defined with a specific purpose in mind, there is no single measure of ecological community diversity which can be uniformly applied. In spite of the difficulty in classifying and delineating ecological communities, at large scales there is some sense of the distribution and extent of the various types of ecosystems, such as wetlands or tropical forests.

The extent and distribution of species diversity

Recent estimates of the total number of species range from 7to 20 million, out of which we believe a good working estimate is about 13 to 14 million. Only about 1.75 million species have been described scientifically, of which slightly under a fifth are plants or vertebrates. Even for the 1.75million species described there is no comprehensive listing. In many cases the area from which a species was officially described has been so dramatically altered that it is no longer possible to re-find the species there. Also, many of the earlier descriptions of species failed to record site characteristics and habitat conditions at the collection sites.

Estimates of species diversity are relatively good for plants and vertebrates although many remain to be described; less well characterized groups of organisms include bacteria, arthropods, fungi and nematodes, while species that reside on the deep-sea floor and below the ground are especially poorly known. Scientists know very little about most of the properties of most of the 1.75 million species that have been described, such as their reproductive biology, demography, the chemicals they contain, their ecological requirements and the roles they play in ecosystems.

Domesticated species represent a tiny fraction of Earth's biota. Of the estimated 320,000vascular plant species about 25% have edible properties, but only about 3000 species are regularly exploited for food. An additional 25,000-50,000 plant species are used in traditional medicine. Only about 30 of the estimated 50,000 vertebrate species have been domesticated. An additional 200 species of fish, mollusks, crustaceans, frogs, turtles and aquatic plants are grown for food and other products, and an increasing number of fungi and other microorganisms are also eaten or used in fermentation processes, in industrial processes, or for drugs. Additional efforts in taxonomy can aid in the identification of more economic uses.

For many groups of terrestrial organisms the number of species tends to increase, and population size and range decrease, from the poles to the equator. However there are numerous exceptions, and there are many groups of organisms for which we lack information on which to base informed statements. In the oceans, the variation in numbers of species follows a less defined pattern. Marine organisms tend to be more widely distributed due to absence of physical barriers; they travel large distances, often with the aid of ocean currents, and those organisms that are rooted or stationary have easily dispersed seeds or larvae.

Endemic species or relict species are those that are naturally restricted by geographic features, such as mountains, islands, peninsulas, continents or other physical features, or where unique local conditions lead to the evolution of species suited only to that specific environment. Remote oceanic islands have the world's largest percentages of endemic species, with only a small proportion of their native species being found anywhere else. In some situations "relict' species represent the last remaining populations of formerly much more widely distributed species.

1.2 BIODIVERSITY IN SRI LANKA

Despite its relatively small area of 65,610 sq. km, Sri Lanka is blessed with an exceptionally high diversity of animals and plants. This has led to the country being recognized, together with India's Western Ghats region as a biodiversity hotspot in the world. Only 34 such hotspots have been identified in the whole world so far.

The geo-climatic diversity in the island is reflected in the variety of inland ecosystems and habitats as given in Table 1.

Major Types	**Categories**
Forests	Tropical lowland rainforests Tropical lower-montane forests Tropical Upper-Montane forests Lowland dry monsoon forests Lowland semi-evergreen forests Arid Zone scrublands Riverine forests
Grasslands	Wet Patana Grasslands Savannahas Dry Patana Grasslands
Freshwater wetlands	Rivers and streams Villus Marshes Swamp forest
Brackish water wetlands	Salt marshes Mangroves Lagoons and estuaries

Table 1. Diversity of inland natural ecosystems in Sri Lanka

Invertebrate Fauna	**Total number of Species**	**Number of Endemics**
Bees	148	21
Dragonflies	120	57
Aphids	84	2
Ants	181	-

Butterflies	243	20
Ticks	27	-
Spiders	501	-
Freshwater Crab	51	21
Land Snails	246	204
Vertebrate Fauna		
Freshwater Fish	82	44
Amphibians	106	90
Reptiles	171	101
Birds	482	33
Mammals	91	16

Marine Fauna	**Total number of Species**	**Number of Endemics**
Marine Molluscs	228	
Sharks	61	
Rays	31	
Marine Reptiles	18	
Marine Mammals	28	

Source: Bambaradeniya, 2006

Endemic biodiversity in Sri Lanka is exceptionally high. Species that are endemic do not occur anywhere else in the world and if they disappear from Sri Lanka, they will be gone forever. According to IUCN's Red List, 27% of the flowering plants, 84% of amphibians, 50% of the reptiles, 54% of the fresh water fish, 85%of the land snails are endemic to Sri Lanka.

As an island, Sri Lanka is blessed with vast numbers of ecosystem diversity Due to its geo- climatic variations. Ecosystem diversity is an important part of biodiversity, as every ecosystem has its own unique species diversity. Conservation focused on eco system diversity will protect not only the species that inhabit those habitats, but also interaction of habitat specific species and their biophysical components as well.

More than 75% of the total endemic species are restricted to the rain forests of the wet zone and the forests of the montane regions. Of the 830 endemic flowering plants, 92% are found in the lowland tropical forests that cover only 2% of the country's total land area. There is also huge human pressure on these biodiversity rich rain forests that continue to shrink. Encroachment is a huge problem and the lowland tea plantations continue to spread, further fragmenting the remaining wet zone forests. This fragmentation could affect the genetic diversity of the species which is another very important aspect of biodiversity. When isolated, the species trapped in a small area continue to breed with a small number of species, hence losing the chance to mix with other species of its own.

The other threats to Sri Lanka's biodiversity, habitat loss notwithstanding, is the extensive use of agro-chemicals that pollute the water and soil eradicating small animals. The ecosystems in the wet zone are so fragile, that removing one factor can be catastrophic. The loss of biodiversity threatens our food supply, opportunities for recreation and tourism, and sources of wood, medicines and energy.

Community participation is an important aspect of biodiversity conservation activities The proposed project will enable to sensitize the general public on the importance of biodiversity and the important role it plays in our lives and the need to conserve biodiversity for posterity.

The United Nations has declared 2010 as the International Year of Biodiversity in view of the importance of preserving the world's biodiversity.

1.3 GLOBAL WARMING AND CLIMATE CHANGE

Global warming and Climate Change are the most talked about global environmental issues at the present time. Scientists studying this phenomenon have stated that there is no doubt at all that Global Warming is taking place at an alarming rate. They have stated that the levels of Carbon Dioxide which is one of the main gases which leads to Global warming, is rising at an alarming rate.

Around one third of the solar energy that reaches the earth's atmosphere is reflected directly back to space. The remaining two thirds is absorbed by the surface and to a lesser extent by the atmosphere. Much of the thermal radiation emitted by the land and ocean is absorbed by the atmosphere, including clouds, and reradiated back to earth. This is called the Greenhouse Effect.

Adding more of a greenhouse gas such as Carbon dioxide intensifies the greenhouse effect, thus warming the earth's climate. Water vapour is the most important greenhouse gas, and carbon dioxide is the second most important one. Methane, Nitrous Oxide, Ozone and several other gases present in the atmosphere in small amounts also contribute to the greenhouse effect.

1.4 RECENT OBSERVATIONS REGARDING CLIMATE CHANGE

Increase in surface Temperature

Surface temperature of the earth has increased by about 0.74C over the past hundred years (1906-2005). According to the 4^{th} Assessment report of the Intergovernmental Panel on Climate Change (IPCC) temperature predictions is in the range of 2.0C to 4.50C. For the next two decades a warming of about 0.20C is projected for a range of emission scenarios. A temperature rise of 0.1C per decade would be expected for the next two decades, even if greenhouse gases were kept at year 2000 levels.

Sea Level Rise

Rising sea level is consistent with global warming. Global average sea level has risen since 1961 at an average rate of 1.8mm per year and since 1993 at 3.1mm per year with contributions from thermal expansion, melting glaciers and ice caps, and polar ice sheets. Model based projections of global average sea level rise at the end of the 21st century will be a low scenario of of 18 to 38cm and in a high scenario of 26 to 59 cm according to the 4th Assessment Report of the IPCC.

Decrease in Snow and Ice

Observed decreases in snow and ice extent are also consistent with warming. Satellite data since 1978 show that annual average Arctic sea ice extent has shrunk by 2.7% per decade, with larger decreases in summer of 7.4% per decade. Mountain glaciers and snow cover on average have declined in both hemispheres.

Changes in Precipitation

From 1900 to 2005 precipitation increased significantly in eastern parts of North and South America, Northern Europe and Northern and Central Asia but declined in the Sahel, the Mediterranean, Southern Africa and parts of Southern Asia. Globally the area affected by drought has increased since 1970s.

1.5 IMPACTS OF CLIMATE CHANGE

Global warming and climate change is the fundamental human development challenge of the 21st century. Failure to respond to that challenge will freeze and then reverse international efforts to reduce poverty. **The poorest countries and most vulnerable citizens will suffer the earliest and most damaging setbacks even though they have contributed least to the problem. Looking to the future, no country- however wealthy or powerful will be immune to the impacts of global warming.**

Climate Change is not just a future scenario. Increased exposure to droughts, floods and storms is already destroying opportunity and reinforcing inequality. Meanwhile, there is now overwhelming scientific evidence that the world is moving towards the point at which irreversible ecological catastrophe becomes unavoidable. Climate Change points in a clear direction: unprecedented reversal in human development in our lifetime, and acute risks for our children and grandchildren.

There is a window of opportunity for avoiding the most damaging climate change impacts, but that window is closing: the world has less than a decade to change course. The world does not lack the financial resources or the technical capabilities to act. What is missing is a sense of urgency, human solidarity and collective interest.

Many Asian countries will bear the brunt of climate change. The report “climate change and the urban poor: risk and resilience in 15 of the worlds most vulnerable cities” published by the International Institute for development and Environment, termed 12 cities from Africa and three from South Asia as being most vulnerable to climate change. According to the report, the most vulnerable coastal cities were khulna of Bangladesh, Maputo of Mozambique, Dara Salam of Tanzania, Mombassa of Kenya and Cotonou of Benin.

Kulna is home to around 1.3 million people, which has frequent and increased level of floods, storm surges, cyclones, water logging, saline intrusion, sedimentation and river erosion.

The dry land cities are Nouakchott of Mauritiana, Diourbel of Senegal, Bamako of Mali, Khartoum of Sudan, while the highland cities are Thimpu of Bhutan, Katmandu of Nepal, Harare of Zimbabwe, Kampala of Uganda, Lusaka of Zambia and Blantyre of Malawi.

The Global Climate risk Index identified Bangladesh and Burma along with Honduras as the most severely affected by extreme weather events from 1990 to 2008.

Six Asian countries were in the ‘top 10’ of the most vulnerable countries from 1990 to 2008: Bangladesh(1), Burma(2), Vietnam(4), India(7), Phlippines(9), and China(10).

1.6 IMPACTS AND VULNERABILITY OF SRI LANKA TO CLIMATE CHANGE

Climate Change impacts have a direct bearing in island nations such as Sri Lanka. The highly populated and urbanized Coastal Zone of Sri Lanka, especially the Western, Southern, and North western provinces will have a direct impact caused by climate change scenarios caused by sea level rise and increased precipitation. Sri Lanka is now increasingly being faced with extreme weather events such as droughts, heavy rainfall followed by flash floods. According to the Meteorological records our rainfall pattern has changed over the last few decades and adverse impacts occurred with unexpected extreme weather pattern. Therefore, highly urbanized areas like Colombo city are frequently being flooded. Heavy rainfall in hilly areas has resulted in landslides causing heavy damage to human lives, livelihoods and properties. The impact of Climate Change on many other sectors such as agriculture, tourism, fisheries, human settlements, public utilities , water supply, health are also now becoming more evident.

Reduction in crop yields due to extreme weather events, changes in harvesting patterns, impacts on tourism due to sea level rise caused by melting glaciers in the polar regions, depletion of fish stocks due to temperature variations, inundation of low lying areas causing impacts on human settlements, salt water intrusion into river systems affecting water supply schemes, increase in the spread of vector borne diseases such as malaria and dengue are some of the climate change impacts on the country.

The chapters above describe some of the most important challenges faced by mankind today. Phenomena such as global warming and climate change pose a substantial risk to man’s

very survival. Similarly the loss of biodiversity worldwide, is a phenomenon which has to be stopped.. In order to do this people have to be told in no uncertain terms that their lifestyles and way of doing things has to change. People have to voluntarily adopt a lifestyle which is less resource intensive and does not result in the excessive emission of greenhouse gases such as Carbon Dioxide and Methane. Such a lifestyle is one which is in harmony with nature and which accepts that other living beings also have an equal right to life as human beings.

2. AN ALTERNATE MODEL FOR DEVELOPMENT

Presently, the classification of different worlds is based on the concept of economic development. The GNP per Capita and the economic growth rate are two of the main tools used to measure economic development. The currently dominant economic framework is unable to simultaneously achieve the three goals of high life satisfaction, high life expectancy and one planet living. Never ending economic development is a mirage and this vicious path is leading human civilization towards a catastrophe. It is vitally necessary now to review the concept of development to establish the path, the targets and goals for a new era.

The Happy Planet Index is (HPI) is a relatively newly introduced tool to measure the progress of human society, which can be used to get a better understanding of the present situation. The HPI ranking is done using data sets for 143 countries, covering 99 percent of the world's population. Scores range from 0 to 100- with high scores achievable by meeting all three targets embodied in the index- high life expectancy, high life satisfaction, and low ecological footprint.

According to this indicator the level of development can be measured on two independent fronts. Firstly, the level of well being at present and secondly, the level of sustainability of lifestyles. The well being is measured using two main indicators: Life satisfaction and Life Expectancy. The Life satisfaction indicator has a range of 0-10. Life Expectancy is a well known index used for the Human Development Index (HDI).

The sustainability of the lifestyles is measured using the index: Ecological Footprint which is expressed in units of "global hectares"(gha) which is a measure of the amount of land required to provide all human requisites. This is the land required for cropping, grazing, forestry, fishing, buildings and carbon sequestration. A person using upto 2.1 gha, in these terms at least, is using their fair share of the worlds resources for one planet living.

The HPI report has introduced a new happy planet charter. They believe that a new narrative of progress is required for the twenty first century and that it is possible to have a good life without it costing the earth.

Governments should strive to identify economic models that do not rely on constantly growing consumption to achieve stability and prosperity. The report suggests a HPI target of 89 which

means reducing the per capita footprint to 1.7 gha, increasing mean life satisfaction to eight and continuing to increase mean life expectancy to reach 87 years.

The HPI ranking shows a totally different portrait of the world. Countries such as the United States, United Kingdom, Germany and Japan which are currently ranked as being "highly developed" fail to make it to the top of the list. Countries when ranked according to the Happy Planet Index, assume a totally different position to that when currently used economic indicators are used. The countries which make it to the top of the list are Costa Rica, Dominican republic, Jamaica, Guatamala, Vietnam, Colombia and Cuba. Countries which are presently classified as being highly developed such as the USA, UK, Norway, Japan fall into 114, 74, 88, 75 places whereas Sri Lanka assumes the 22nd position in the list. Sri Lanka may have improved the HPI ranking further after the eradication of terrorism from the country as it has definitely increased the life satisfaction levels of people. The ecological footprint of about 80 percent of the population living in our country is very much within the recommended levels. It is important to manage the consumption patterns of the balance 20 percent of the population (the affluent) to reduce the ecological footprint of the nation as a whole. Furthermore, the emphasis should be on improving the quality of life of the poor and underprivileged communities living in the country without compromising the needs of future generations.

3. THE HAPPY PLANET INDEX

The Happy Plant Index (HPI) reveals the ecological efficiency with which human well being is delivered. The index combines environmental impact with human well being to measure the environmental efficiency with which, country by country, people live long and happy lives.

Table 3.1: **Happy Planet Index**

RANK	**COUNTRY**	**HPI**
01	Costa Rica	76.1
02	Dominican Republic	71.8
03	Jamaica	70.1
07	Cuba	65.7
09	Brazil	61.0
12	Egypt	60.3
13	Saudi Arabia	59.7
14	Philippines	59.0
16	Indonesia	58.9
17	Bhutan	58.5
20	China	57.1
22	**Sri Lanka**	**56.5**
24	Pakistan	55.6
31	Bangladesh	54.1
33	Malaysia	54.0
37	Nepal	51.9

41	Thailand	50.9
49	Singapore	48.2
51	Germany	48.1
52	Switzerland	48.1
71	France	43.9
74	United Kingdom	43.3
75	Japan	43.3
79	Iraq	42.6
88	Norway	40.4
102	Australia	36.6
108	Russia	34.5
114	United States	30.7
123	United Arab Emirates	28.2
128	Kuwait	27.0
141	Botswana	20.9
142	Tanzania	17.8
143	Zimbabwe	16.6

Our target therefore should not be to blindly copy the development strategies and targets of the so called Developed World but to adopt lifestyles and consumption patterns which allow a more equitable and environmentally sustainable lifestyle, for all people.

This is where the Buddhist way of life will come into focus. Buddhism is a philosophy and a way of life, and its main focus is on how human beings can live a life of harmony and contentment. One of the main tenets of Buddhism is that of following the “Middle Path”. Buddhism is a religion which teaches people to be content with little material wealth, unlike the present day concept where happiness is associated mainly with the acquisition of material wealth, whereas humane qualities such as kindness, gentleness, unselfishness are given no great value. Most of the ills of the present day generations have arisen due to the focus on material wealth as opposed to the cultivation of good qualities.

It is therefore abundantly clear that present day yardsticks which are used to measure development should change drastically. The focus should be on sustainability of lifestyles rather than the blind adoption of western type of lifestyles which are driven by consumerism. This is where countries like Sri Lanka could look back and learn many good lessons from there own ancestors. It is clear that older generations in Sri Lanka lived lives of happy contentment without the mad rush for a consumerist lifestyle. This itself proves that people could still be very happy and content as long as there basic needs of food, shelter and good health are met. Although in the modern context it may not be possible for us to totally adopt the lifestyles of our ancestors, it is clear that there are many good lessons for us to learn from them about how to live life without causing a burden on the earth and our future generations.

4. ECO-VILLAGES

There are many ways of changing the present day lifestyle in favour of a lifestyle which is far less burdensome to the planet. “Ecovillages” are one such concept which reduces the burden on the planet. An ecovillage is a self-sustaining community aimed at developing alternative ecological, environmental and social standards. The ultimate goal of an ecovillage is to create an environment that can support itself through its own development. Think of an ecovillage as the basis for a new world, one in which people must take responsibility for their own energy sources, food and well being.

Eco villages are thought by many experts to be the only way forward if the world is to continue. The Global Environment Outlook report published by the United Nations in 2000 stated that the world’s present course is unsustainable and that postponing action is no longer an option.

There is urgent need to find real alternatives to the rapidly diminishing energy sources that we have at the moment. The eco village is the prototype of the community of the future. Recycling, solar energy and non toxic materials are all used by the eco village as standard. The inhabitants of the ecovillage come together under common values and guiding desires. They wish to exist in a world in which the environment is protected and the main principle is to not take away more from the earth than we can give back. Eco village dwellers want to enhance the quality of their lives at no cost to the earth’s environment.

The inhabitants of an eco village are usually a close-knit group of people with strong spiritual and social beliefs. They are here to help each other, a well as to find a model for a sustainable answer to the world’s economic and environmental problems. If the eco village proves to be self-sustaining, then it may be the real answer to the world’s energy crisis.

Most eco villages share some standard rules. They have their own local organic food production and renewable energy systems. The decision making process is a group effort, and global networking is used to pass on new solutions and methods to other eco villages.

5. AGROTOURISM

Agro tourism is a mild form of sustainable tourist development and multi-activity in rural areas through which the visitor has the opportunity to get acquainted with agricultural areas, agricultural occupations, local products, traditional cuisine and the daily life of the people, as well as the cultural elements and the authentic features of the area, while showing respect for the environment and tradition. Moreover, this activity brings visitors closer to nature and rural activities in which they can participate, be entertained and feel the pleasure of touring, learning and discovering.

At the same time it mobilizes the productive, cultural and developmental forces of an area, contributing in this way to the sustainable environmental, economic and social development of the rural area.

Agro tourism could take many different forms as practiced in different countries as given below

- Large farms offering vacation to the tourism market
- Institutional links between organic agriculture, sustainable land use, nature protection, rural development and the protection of cultural heritage
- Entrepreneurship in the rural areas while protecting their heritage(Cyprus)
- Stayovers in private dwellings(Turkey)
- Farms focusing on beekeeping leading to the production of honey, berry(fruit) picking, dairy farms, produce farms and fishing(Quebec, Canada)
- Development of craft(Italy)

In parts of the developing world, agro tourism is also associated with for example:

- In Malaysia, the focus is on fishing villages, mangroves and fruit farms
- In Colombia the emphasis is on home stays.
- In Bali, fruit and flower farms are used.
- In Thailand, the emphasis is on conservation of the environment. The Thais adhere to three basic principles of sustainability which are conserving natural areas, educating visitors, and benefiting the local population. They also link their eco-tourism to health through Day Spas. Agro tourism relates to forestry farms, herbal farms and animal farms in the eyes of the Thai's.
- In South Africa mariculture, salt extraction and agriculture based tourism is an integral part of local government strategies.

Sri Lanka being an agricultural country with a very high potential for tourism could combine the two aspects for an even better market. With the recent end in the thirty year conflict in the Northern parts of the country Sri Lanka has begun to attract the attention of the world as a country with a very high potential for tourism. A recent article in the New York Times listed Sri Lanka as the number one tourist destination from among thirty one top tourist spots the world over. Similarly the National Geographic Channel placed Sri Lanka in the number two slot in the world. It is imperative that we develop a tourism plan which is sustainable in the long term rather than allow tourism to grow in a haphazard manner which could be very harmful in the long term.

6. TOURISM

Natural areas and eco systems such as mountains, rivers, wetlands, forests, lagoons, and lakes are major attractions to tourists. Tourism can bring numerous socio-economic benefits to a region, in terms of creating local employment, stimulating local economies, generating foreign exchange, and creating recreational facilities. Positive effects on the environment often derive from these socio-economic benefits. Such positive effects may include

- Encouraging productive use for conservation objectives of lands which are marginal for agriculture, thereby enabling large tracts of land to remain covered in natural vegetation.

- Promoting conservation action by convincing government officials and the general public of the importance of natural areas for generating income from tourism and
- Stimulating investments in infrastructure and effective management of natural areas.

These benefits can provide incentives for effective management of the natural areas which are tourist destinations, which in turn enhances the quality of the natural resources which attract tourists. Properly planned and managed tourism in natural areas is both non-polluting and renewable, and numerous examples exist where tourism has provided powerful incentives for conserving biological resources.

However biological resources can also be damaged by inappropriate tourism developments. A guiding principle for tourism development in natural areas should be to manage the natural and human resources so as to maximize visitor enjoyment while minimizing negative impacts of tourism development.

Four general principles are relevant for linking investments in tourism with conservation of biological resources.

- Planning for tourism development must be integrated with other planning efforts, particularly in natural areas which are potential tourist areas.
- The level of visitor use should be determined on the level of visitor use an area can accommodate with high levels of satisfaction for the visitors and few negative impacts on the environment.
- For each major tourist destination based on the attractions of biological diversity, a management plan should be developed to specify objectives for both tourism and resource management, and to determine how sufficient income from tourism can be provided to the natural area to provide an incentive for improved management.

In short, tourism and conservation of biological resources can be natural partners, and each can benefit from the other if both are properly managed.

As mentioned earlier with the end in the Northern conflict the country has been identified as a top tourist destination in the world. It is now up to the authorities in Sri Lanka to use this opportunity to our benefit rather than let tourism grow in a haphazard manner which could be very damaging both to our eco systems as well as our culture in the long term. It is up to us to make full use of this opportunity to benefit the people of this country and not only a few businesses.

7. BARAWA BIODIVERSITY PARK (BBP) PROJECT JUSTIFICATION

The Barawa Biodiversity Park (BBP) project is a project which aims at:

- Sensitizing the general public on the value of the rich biodiversity to which Sri Lanka is fortunate to be blessed with
- The importance of environmental protection.
- An alternate lifestyle which could be adopted which is less natural resource intensive and is environmentally benign.

Sri Lanka is a country which is richly endowed with a rich Biodiversity. As mentioned earlier Sri Lanka has been recognized the world over as a Biodiversity hotspot. While being richly endowed with nature's bounty Sri Lanka is also a low carbon emitting nation when compared with most other countries. As such, Sri Lanka is well set to become one of the leaders in the world of a country which preserves its Biodiversity and at the same time is a low Carbon economy. In the modern world these are two factors which would attract tourism into the country. Most tourists and in particular western tourists are very environmentally conscious and are deeply attracted to countries such as Sri Lanka which are Biodiversity hotspots and low Carbon economies at the same time.

The project will showcase most of the environmentally friendly technology including the use of renewable energy such as solar power, agriculture without the heavy use of chemicals, adoption of the 3R concept ie reduce, reuse and recycle, concepts such as the reuse of agricultural and household waste for compost making and use in agriculture. These are all concepts which are very valid and timely adoption of such concepts by the general public is especially crucial at this point of time and the availability of a location in close proximity to Colombo is especially valuable as access to the project area will be easy. The Barawa Bio Diversity and Agro tourism Park will be a living museum and a refuge of great beauty where visitors can step away from their busy lives to reconnect with nature. Visitors may wander through the Biodiversity Park on their own or join public tours.

The project could also showcase the wisdom of our ancestors who adopted low consumptive lifestyles which were both sustainable in the long-term and was not a burden on the environment. The philosophy that man is only a temporary caretaker and not the owner of the earth and its resources was ingrained in our ancestors due to the influence of Buddhism. While

the influence of western culture has eroded many of these invaluable traits in our people, the time is now opportune to teach our younger generations the value of simple living rather than adopting the consumerist lifestyles of the western world which has ultimately caused havoc in the world both economically and environmentally

.

The project objectives are basically fourfold.

- Flood protection
- Conservation of biodiversity
- Conservation and appreciation of our cultural heritage and preservation of traditional knowledge
- Adoption of eco-friendly lifestyle
- Provision of an economic benefit to the people in the area from the project.

Conservation of Biodiversity

The BBP Project will showcase the importance of the conservation of biodiversity through the implementation of several projects. These are the establishment of a

- Osu Uyana (Herbal Garden)
- Butterfly Garden
- Documented plant collections for teaching and research.
- Exhibits and demonstration plantings where visitors can learn about sustainable gardening

The BBP will showcase the rich biodiversity of Sri Lanka by showcasing the exotic plants which are found in Sri Lanka .This will give an opportunity to the general public to appreciate the variety of different plants found in different areas of Sri Lanka as the biodiversity park will exhibit them in an attractive manner along with the full scientific names as well as the common names of these plant as well as the different uses to which they are put. The BBP could also be made into a research station by collaborating with universities. Documented plant collections could be exhibited in the BBP, which can be used for teaching and research purposes by the participating universities. Exhibits and demonstration plantings where visitors could learn about sustainable gardening would give an added impetus to the present government's policy decision to give high priority to agriculture as well as home gardening. Thus, the BBP will become a centre of learning and research as well as a place to appreciate our rich biodiversity. Similarly, the Osu Uyana could display all the different types of plants which are used in Ayurvedic medicine along with a sales point where Ayurvedic medicine could be sold to the public.

A part of the BBP could be made into a butterfly park by growing flowering plants which attract butterflies, Different types of butterfly species could be demonstrated in the Butterfly Park thereby giving added value to the BBP.

Conservation and Appreciation of our Cultural Heritage and Preservation of Traditional Knowledge

- Establishment of a model lake and paddy field

- Model traditional village consisting of an ambalama, bissa, Gamagedera, temple, Paddy field,

- Regular cultural activities where typical Sri Lankan cultural aspects will be shown such as a typical wedding, Pirith ceremony, paddy harvesting, Avurudu festival,

- Ayurvedic Treatment Centre with traditional Ayurvedic Physicians specializing in the treatment of different ailments.

Conservation and appreciation of our rich cultural heritage will be one of the major objectives of the complex. A model lake and paddy field will be constructed at the site where the actual working of a paddy field and the different stages of cultivation and harvesting could be shown. A model traditional village could be constructed at the site showing all the features of a traditional village such as a bissa, gamagedera, temple, paddy field and lake.

Regular cultural activities will be regular feature here where typical Sri Lankan ceremonies such as a wedding, a pirith ceremony, paddy harvesting, Avurudu festival could be shown as regular features.

The site will also feature a "Vedagama" where traditional Ayurvedic Physicians specializing in the treatment of different ailments will be present and visitors to the location can obtain their services as well as the required traditional medicines at this location.

Promotion of an Eco Friendly Lifestyle

- Organic farming of fruits and vegetables
- Biogas production and energy generation from the waste from the farm
- Energy generation and lighting using solar energy and possibly wind energy and dendro power (biomass energy)
- Compost making using agricultural, household and farm waste.

The benefits of adopting an eco friendly lifestyle will be showcased at the site through exhibition plots which show organic farming without the use of harmful fertilizers or pesticides. The public could be made aware of the benefits of adopting such a lifestyle by showing the health benefits of adopting such a lifestyle.

Similarly exhibition plots where biogas generation using plant material as well as animal waste could be established whereby the public could be taught the valuable lesson that waste which most people look upon as a material to be thrown away, is actually a valuable resource which could be used for things like biogas generation and compost making without investing large amounts of money.

As a means of popularizing the use of renewable energy, the use of solar energy and wind power and dendro power could also be demonstrated at this site. With the worlds growing energy demands, it is clear that the continued reliance on fossil fuel generated power, has to be phased out and the use of renewable energy stepped up. This is especially important at this point of time in the world where global warming is caused mainly due to increased emissions of Carbon Dioxide particularly from power plants and industries which use fossil fuels. The benefits to both the environment as well as to the individual through cost reduction could be clearly demonstrated through these pilot plants.

Provision of an Economic Benefits to the People of the Area

Ornamental flower production on a commercial basis

- Sale of organic fruits and vegetables
- Establishment of a marketing complex with restaurants and stalls for fresh produce.
- Businesses producing traditional products
- Agricultural farm for milk production

All of the above mentioned features will result in a direct benefit to the people in the area as they will be income generating mechanisms. In order to create a positive attitude among the people of the area regarding the project, it is very important to show that establishment of the project at this location will result in a direct and tangible benefit to people of the area. In view of this it is very important to identify and implement programmes which bring in revenue and other benefits to the people of the area.

In addition to the above, the following features will also be a part of the proposed project.

- Provision of basic infrastructure
- Information center for local and foreign tourist
- Agro tourist catering and recreation centers
- Tourist offices organizing tours of eco-tourist and cultural interest.
- Environmental Education and awareness center for the general public and targeting children in particular.
- Organized tours of fruit orchards, rubber plantations, paddy field where visitors could familiarize themselves with different agricultural practices adopted for different crops. 200 acres of beautiful gardens for active recreation or peaceful contemplation.
- Winding paths for walkers, joggers or bicyclists.
- Benches where visitors can sit and enjoy the view and picnic tables for casual gatherings.
- Guided tours, classes workshops led by universities.
- Public plant sales offering great plants for home gardening or agriculture.

Flood control will be one of the main components of the project as the project area is subject to periodic flooding. A specialized study would require to be carried out prior to project implementation. Under this study aspects such as surface water drainage patterns, water spread areas, estimated flood discharges at the project site of inlets and outlets, flood peak values, inundation levels and retention areas, details of maximum observed historical floods in the area including estimated flood discharges and water spread area of the project site for different time periods will be studied. A comprehensive flood management plan will be developed using the expertise of agencies such as the Sri Lanka Land Reclamation and Development Corporation (SLLRDC) and the Irrigation Department.

8. CONCEPTUAL PLAN

The basic idea behind the BBP is to create an open area is close proximity to Colombo which will recreate the ambience and provide an area rich in Biodiversity and greenery to cater to city dwellers in particular as well as to the thousands of foreign tourists who may not have the time to go on extended tours around the country. The project is also expected to recreate the living conditions of our ancestors who adopted a much more environmentally friendly way of living with low levels of consumption as well as non destructive use of natural resources for their day to day living. The concept of a low carbon way of living is especially important in this day and age when global environmental phenomena such as Climate Change are issues of major concern worldwide.

The project will incorporate many new concepts such as eco villages, agro tourism, eco tourism, use of renewable energy, waste recycling, concept of reduce, reuse and recycle, use of biodegradable items, waste minimization concepts, organic food production with no chemical use to name a few. The project will recreate a different time and way of living with the concept of village, paddy field, lake, temple concept being recreated at the Barawa site. This would enable city dwellers and more importantly the younger generation of today who have not been exposed to such concepts to appreciate the cultural and environmental values of a different style of living. The style of living of our ancestors which was basically to live in harmony with nature in a non destructive and benign way, is a lesson which is vital for the younger generation of today, who are fast adopting the over consumptive and environmentally destructive lifestyle of the more developed nations.

The project site will also comprise of a biodiversity park where rare and endemic types of plants will be on display for the general public as well as for the use of academics interested in research. Sri Lanka is recognized the world over. as a biodiversity hotspot with many endemic species of plants and animals. It is therefore important to make the general public and particularly the younger generation more aware of the rich biodiversity of our land and to inculcate in them the importance of preserving the rich biological diversity of our land for the use of future generations. The main purpose of the biodiversity park would be to showcase the rich biodiversity with which Sri Lanka is endowed with and for the general public to appreciate biodiversity and to inculcate the importance of preserving biodiversity. The park will also

provide opportunities for ecotourism and economic development in the area and model landscape improvement.

In addition, researchers and interested parties would be able to study less known and underutilized plants. Moreover, the park will be an educational and training center on fauna and flora. The park will be an educational resource for educational institutions of all levels , from junior school level up to university level. The park will also be a source of expertise, particularly in the long term where diploma courses and other formal educational courses in Floriculture and Herbal Industries will be an important aspect. Future courses in biodiversity and conservation will also benefit from having a national resource to draw upon, a location for student volunteers- both national and international to work and study in to gain experience in their respective fields. The biodiversity park will also be a place where research projects could be carried out.
The herbal garden (Osu Uyana) within the premises will hold a specialized herb collection. Sri Lanka has a large number of medicinal plants which are currently being widely used in Ayurvedic medicine. These are valuable plants which can be used in the development of the herbal industry, which is one of the fastest growing industries in other countries in the region. The park will become a center for the promotion of the herbal industry; one which can be sustained in the future if sustained well today. Another area of plant based industries is production of bio-fuel.

The park will also illustrate the use of new and innovative technology such as the use of solar energy for lighting and other uses, the concept of reduce, reuse and recycle through demonstration plants on compost making with household garbage, bio gas generation using household waste as well as animal waste, concepts such as rain water harvesting and waste water recycling and reuse. Agricultural plots where vegetables and fruits are grown without the use of chemicals such as commercially available pesticides and fertilizers could also be a part of the park. The “organic” produce from such plots could be sold to visitors thereby generating an income for the villagers and residents of the area.

The BBP is a concept whereby agricultural and commodities based tourism, which is the hottest niche in ecotourism today will be actively promoted within the Western Province. Tours could be arranged to the agricultural farms in the area such as the livestock farm, rubber estates, fruit and vegetable farms. Visits could be structured around tours offering insight into the cultivation, care, processing and manufacturing of these commodities for sale or export. Crops such as rice, rubber, fruits and vegetables could be used for this purpose. The different practices adopted for different crops could be explained to the visitor. Environmentally friendly organic farming practices without the heavy use of pesticides and fertilizers and the effective use of waste materials such as animal dung, and fruit and vegetable waste for making of organic fertilizers and for the production of biogas from animal and vegetable waste which could be used for lighting and other uses such as cooking could be shown to visitors to the site. Visits could be arranged for both local and foreign visitors to observe first hand for example how rubber trees are tapped for latex and how the latex is subsequently processed-from coagulation to pressing and processing, which would provide a very interesting and educational tour for both the young and the old as well as local and foreign visitors. Similarly visitors themselves could visit the fruit orchards in the BBP where they could pick the fresh fruits off

the trees themselves and taste it fresh off the trees. Considering the lush tropical climate of the area, an amazing variety of fruits could be grown in the area including pineapples, papaws, rambuttans, mangoes, avocadoes, jackfruit, mangosteens and guavas. Fruit farms offering all these fruits will no doubt be an attraction to visitors both local and foreign. Stalls selling fresh fruits and vegetables could be set up in the area with kiosks offering fresh fruit and vegetable juices which are extremely healthy and is catching up very fast in urban areas of Sri Lanka The sale of fruits and vegetables and juices made out of these could bring in much needed income for both the residents of the area as well as to the Western Province.

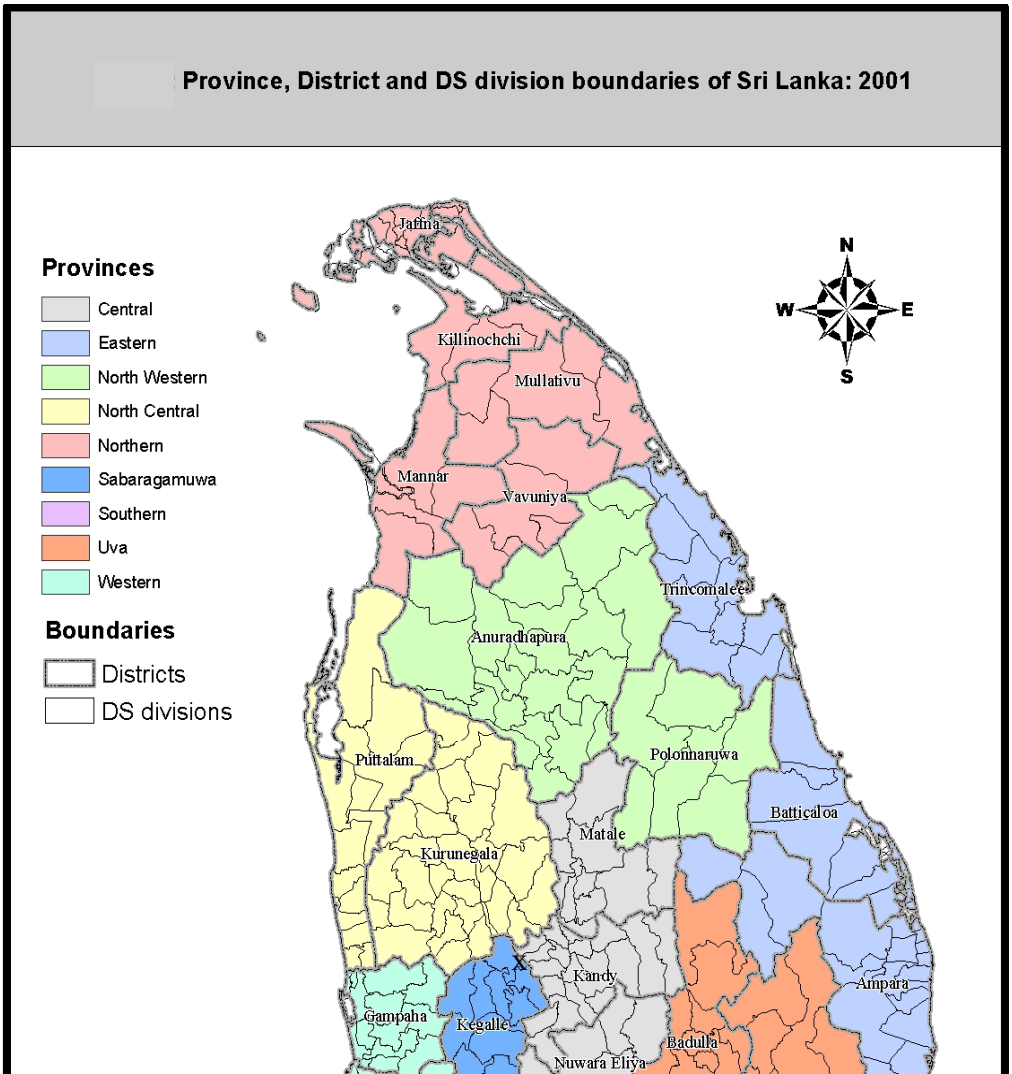
The park will also have stalls where visitors could purchase “environmentally friendly” items made using natural materials and which are not harmful to the environment. These are products which are biodegradable and which do not add any toxic materials to the environment when discarded. There could also be food stalls selling “health foods” which would include traditional recipes for such items. The ingredients for these traditional health foods could come from BBP own vegetable plots. There will also be endemic fauna, flora, medicine and other useful plants in the proposed Biodiversity Park and Osu Uyana. The hotels and restaurants in the zone could provide an exciting array of foods for visitors.

Visitors to the BBP could learn about important facets of village life such as harvesting and develop an appreciation for local and authentic handicrafts and foodstuffs at the “kade” (trade stall or shop) which are made by rural people. Educational and culturally appreciative activities will be held on a regular basis for both adults and children, providing insights into Sri Lankan arts, culture, crafts, history and traditions. These workshops will be conducted by leading resource and research personnel.

9. PROJECT AREA

The area earmarked for the Barawa Biodiversity Park (BBP) Project is situated within the Divisional Secretariats' Divisions of Homagama, Seethawaka(Hanwella) and Padukka of the Colombo District. The general project area could be accessed either from Colombo-Ratnapura (A4 High level road), road between 31st and 32nd Km Post from Colombo-Ratnapura (AB10- Low Level Road) Road between 27th and 28th Km post. Refer Map 1 below.

Map 9.1: **Province, Districts and DS division boundries of Sri Lanka :2001**

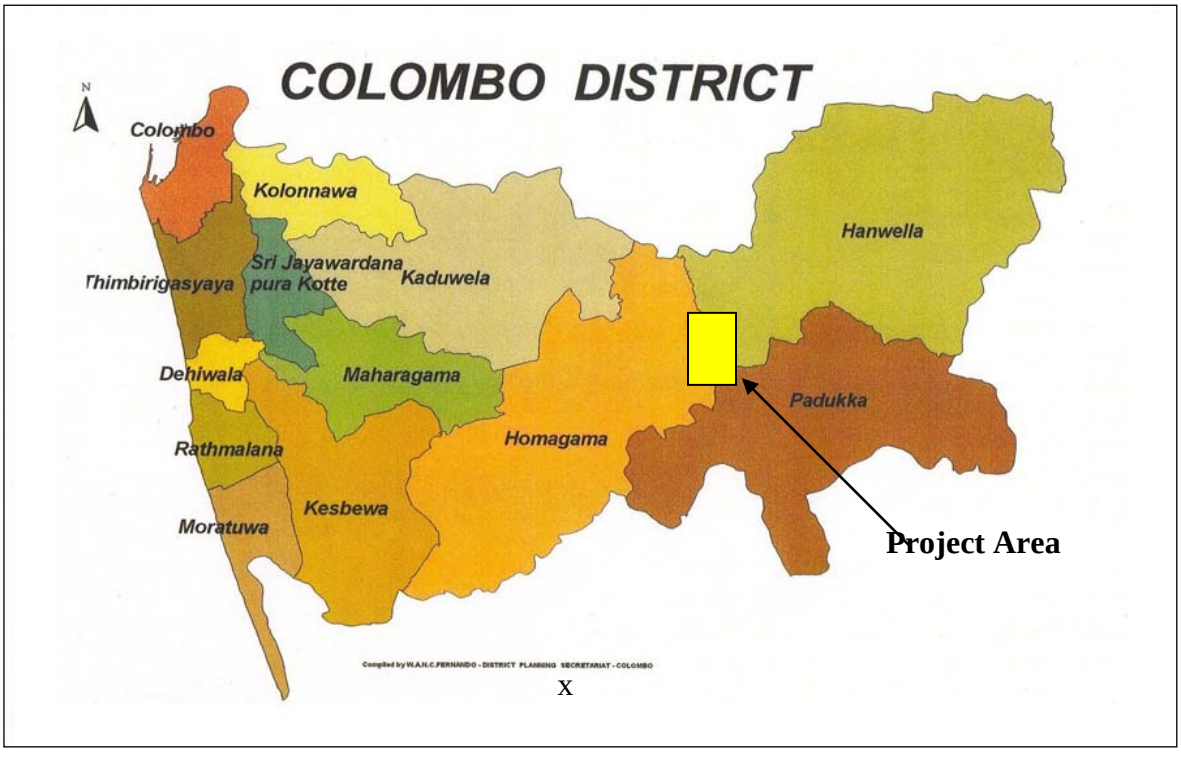


The total project area is 180 ha (444 ac). The distribution within the three respective Divisional Secretariat Divisions of Padukka, Seethawaka and Homagama is given below.

Table 9.1: Land Extent of the Project Area

Divisional Secretariat Division	Extent (Ha)
Padukka	10
Seethwaka	71
Homagama	101

Map 9.2 : **Colombo District with Divisional Secretariat Divisions**



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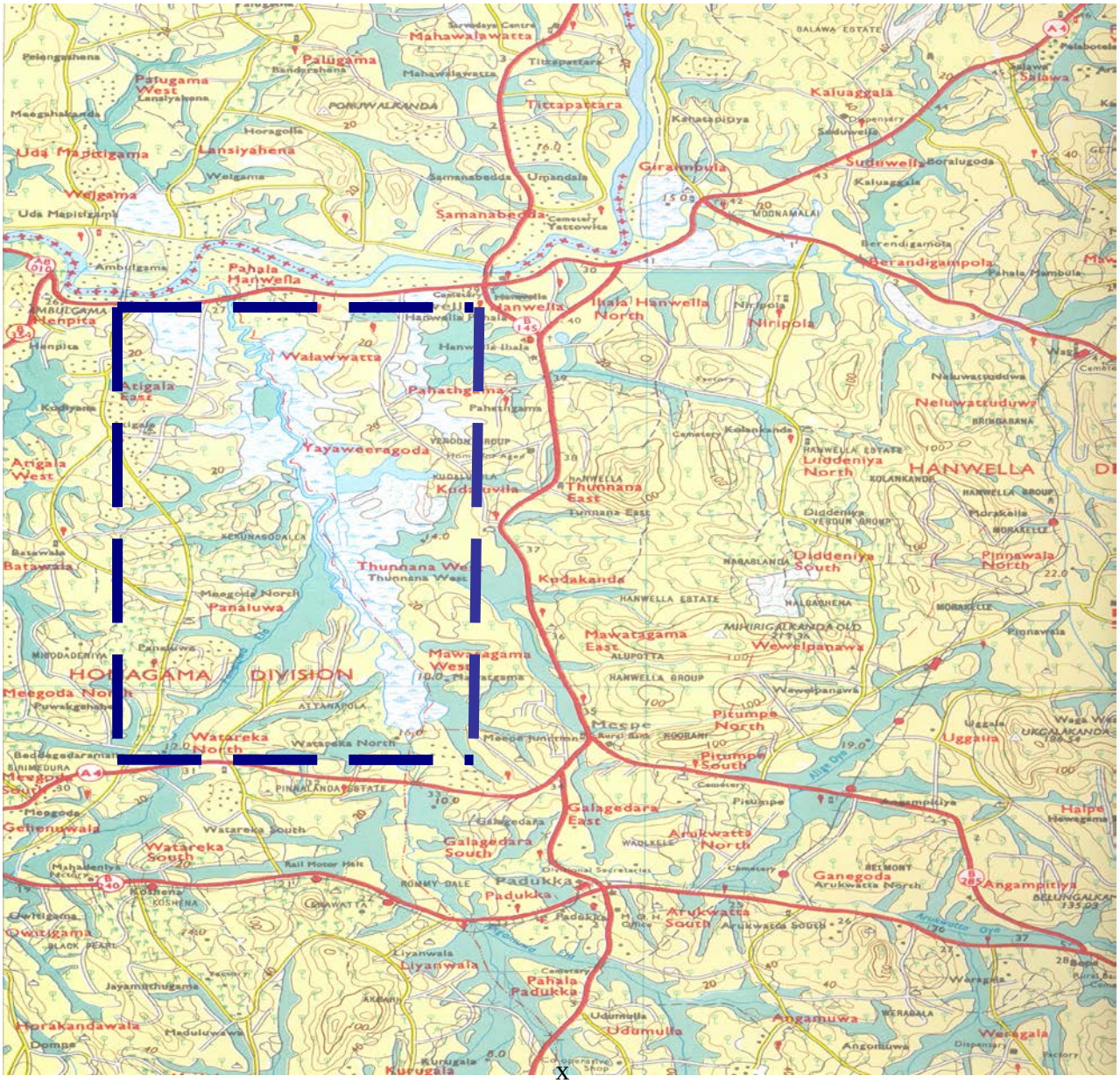
The Barawa Eco-Development project is situated in a rural setting but is surrounded by major urban centers such as Homagama and the highly urbanized Divisional Secretariat of the Colombo District. It is also bordered by Gampaha District, Kelani river running parallel to the Low Level Road being the district boundary, and accessible from Kalutara Disrict as well.(Please refer Figure 1 and maps 2 and 3 below).

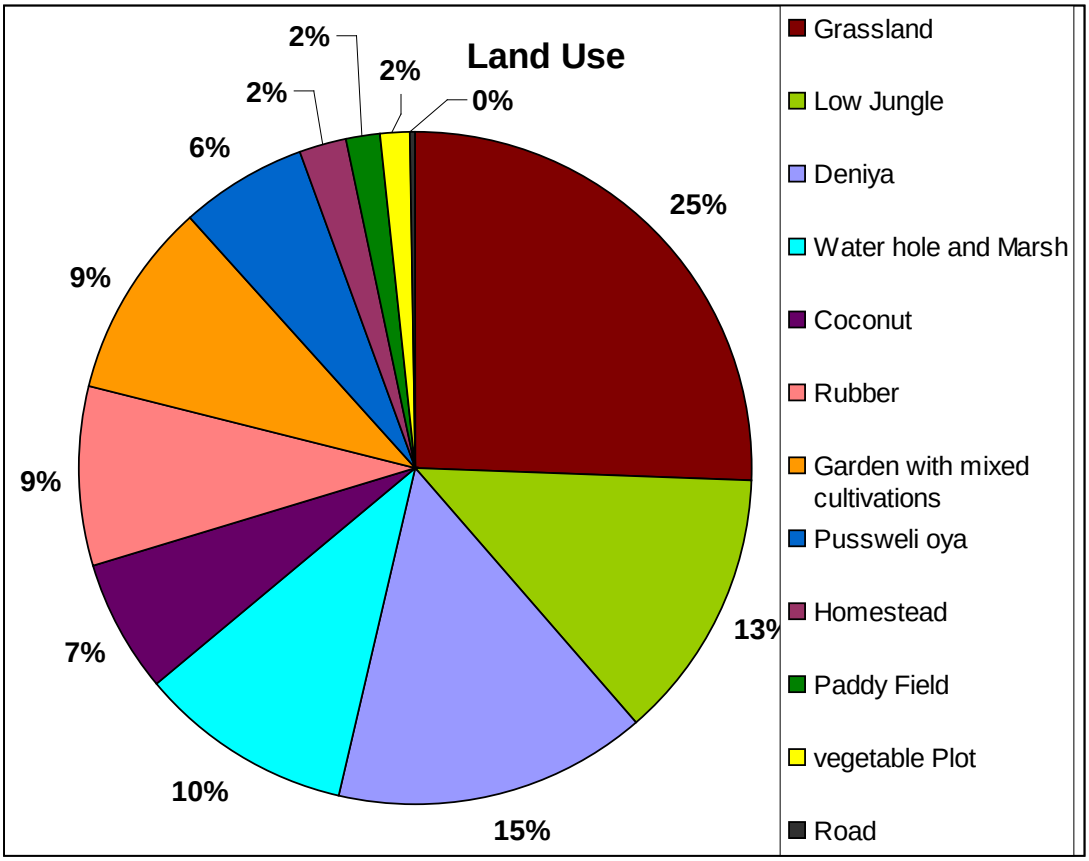
Map 9.3: **Project Area**



X

As per the survey plan the BBP Project area is not in a contiguous block, but comprised of a larger Northern Block and comparatively small Southern Block. The Northern block is 80 ha in extent whereas the Southern Block is 100 ha in extent. The project area is bisected by the Army Camp. However the two blocks are connected by the Pusweli Oya which can e considered as the back bone of the BBP Project. Pusweli Oya is a perennial water source and is a major tributary of Kelani Ganga. The Pusweli Oya is being fed by a number of other tributaries all of which including the Pusweli Oya is the major natural water source of the area. The Pusweli Oya and the surrounding low lying areas which form a major portion of the BBP Area function as a flood retention area of Kelani Ganga. In view of its flood retention values, this area has been declared as a low-lying , waste or marshy land by the Honurable Minister of Urban Development and Sacred Area Development under the provision of the Sri Lanka Land Reclamation and Development Corporation Act No 35 of 2006 through Sri Lanka Government Gazette Extraordinary No 1545/10 of 17th April 2008.

Chart 9.1: **Land Use Pattern of the Project Area**



As per the surveyed plan, there are 162 land lots of varying exents spreading over 8 villages as depicted in Table 2 below.

Table 9.2: **Distribution of Lands Among Various Villages**

DS Division	GN Division	Village	Number of Lots	Extent (Ha)
1. Padukka	Galagedara North	1.1 Galagedara North	17.0	9.50
2.Seethawaka	Mawathagama (West)	2.1 Mawathagama and Thunnane	19.0	22.7
	Thunnane (West)			
	Hanwella Pahala	2.3 Hanwella Pahala	25.0	
	Jayaweeragoda			
	Walavwatta			
3. Homagama	Watareka	3.1 Watareka	52.0	45.5
	Panaluwa	3.2 Panaluwa	7.0	10.0
	Artigala	3.3 Artigala	42.0	37.0

10. REQUIRED REPORTS PRIOR TO COMMENCING THE PROJECT

Several different reports will be required to be completed prior to commencing the BBP project. There are several aspects within the site itself which require careful study prior to project commencement.

1. FLOOD PREVENTION AND/OR MANAGEMENT ASPECTS

Since the project area is prone to flooding, this is one of the aspects which require detailed study in order to determine the severity of flooding of the area, and the required mitigation and /or management measures required in order to proceed with the project.

2. TOURISM RELATED ASPECTS

Since a major focus of the project is on tourism and related aspects, it would be required to study this aspect in detail. A feasibility study will require to be carried out in order to

estimate the number of local and foreign tourists who would be expected to visit the location within the next twenty to thirty year period. Calculations will have to be based on the present figures on tourist arrivals and the expected increase of tourist arrivals within the next decade or two due to the cessation of the conflict situation in the country.

A parallel assessment will be required in order to assess the infrastructure requirements in the area in order to cater to the increased influx of both foreign and local tourists.

An essential requirement of the study would be to assess how the local resident population would benefit through the increased tourist arrivals. This is considered a very important aspect as there would be less resistance to the project by the local population if they are convinced that they stand to benefit through implementation of the project.

3. **AGRICULTURAL ASPECTS**

Agriculture will be an aspect that will take center stage in the project; as this is primarily an agro tourism based project. Detailed studies will be required on the type of agricultural crops that would grow easily in this area. The report should cover both food crops as well as non food commercial crops. An important aspect would be to determine the kinds of fruits and vegetables that would be feasible to be grown on a commercial scale at the project site.

Marketing aspects will also require to be studied in order to determine the type of products for which there would be a ready market and also the marketing strategies to be used and programs and activities under this.

5. **SOIOLOGICAL ASPECTS**

A report on sociological aspects will also be a prerequisite for the successful implementation of the project. The resident population of the area would naturally be very interested in all aspects of the project and most importantly how the project would benefit them. This is a crucial aspect for the success of any project, as the residents of an area surrounding the project area could make or break a project. This has been experienced in many instances in Sri Lanka and sociological aspects require to be studied in detail if the project is to go ahead as planned.

6. **LEGAL ASPECTS**

Legal aspects relating to the implementation of the project will require to be looked into by a legal expert. Legal aspects should cover comprehensively issues such as the agencies under whose jurisdiction the project area falls , the types of approvals and other regulatory requirements of the project.

11. PROJECT STAFF FOR THE BBP PROJECT

The requirements of total project staff for the project unit are as follows; However requirement of the recruitment under each phase (3 phases) will be depending on the actual need.

Specialist Staff

- Project Director (1)
- Deputy Project Directors (3)
- Deputy Managers (13)
- Project Officers (40)

Support Staff

- Management Assistants (40)
- Secretaries (4)
- Drivers (17)
- Peons (17)

The Project Director will be in overall charge of the Project Office and will have three Deputy Project Directors (level B) under him/her. The Deputy Project Directors will be as follows

- Project Manager (Development)
- Project Manager (Administration)
- Project Manager (Biodiversity)
- Project Manager (Design)
- Project Manager (Promotion and Public Relations)

Under each of the Project Manager there will be Deputy Managers as given below.

Project Manager (Development)

- Deputy Manager (Engineering)
- Deputy Manager (ICT)

Project Manager (Biodiversity)

- Deputy Manager (Agriculture)
- Deputy Manager (Environment)
- Deputy Manager (Tourism)
- Deputy Manager (Irrigation)
- Deputy Manager (Marketing)

Project Manager (Administration)

- Deputy Manager (Accounts)
- Deputy Manager (Legal)
- Deputy Manager (Security)
- Deputy manager (Procurement)

Following officers will be placed under Project Manager (Design) and Project manager (Promotion and Public Relations)as given below.

Project Manager (Design)

1-Architect 1-Town Planner 4- Draftsman 1- GIS Unit 1- IT Unit

Project Manager (Promotions and Public Relations)

1-Public Relations officer (media) 1- Public Relations Officer (grass root level work)

Deputy Manager (Engineering)

Engineer 1 Engineer 2 Engineer 3

Deputy Manager (Irrigation)

Engineer 1 (Wewa) Engineer 2 (Ela) Engineer 3 (Flood Management)

Deputy Manager (Environment)

1- Biodiversity Officer	1- Waste Management Officer	1- Traditional Knowledge (2 Officers)

Deputy Manager (Marketing)

1- Agricultural products	1- Traditional Events	1- Industrial Products

Deputy Manager (Agriculture)

1- Beekeeping and Butterfly Garden	1- Grains, Vegetables and fruits	1- Osu Uyana	1- Entomologist

Deputy Manager (Accounts)

1- Payments	1- Income generation	1- Record Keeping	1- Petty cash

Deputy Manager (Tourism)

1- Promotion	1- Co ordination with private sector

Deputy Manager (Legal)

1- Legal officer Agreements	1- Legal Officer (Prosecutions)

Support Staff

1 peon each for PD, 3 DPD and for each Deputy Manager (13)- Total 17 peons
1 Driver each for the PD and three DPD and 13 Deputy Managers -Total 17 Drivers
1 Secretary each for project Director and Deputy Project Directors- Total 04 Secretaries
40 Project Officers
40 Management Assistants

TOTAL STAFF REQUIREMENT 135
The qualifications and contract period of the project staff is given below.

Project Director

Qualifications- Masters Degree in Environmental Science with at least 15 years of experience in the field of Environmental Management at national or international level with at least five years at the senior management level.
Contract Period- Initially for a period of one year, to be extended as required.

Duties: The Project Director will be in overall charge of project co-ordination activities and will report to the Secretary of the Ministry of Agriculture, Agrarian Development, Minor Irrigation, Industries and Environment of the Western province. The duties of the Project Director will include the following

- Overall coordination of project related activities with other stakeholders
- Drafting of the Terms of Reference for relevant project specialists
- Review of technical reports submitted by other project specialists for adequacy
- Identification of technical studies to be carried out prior to project implementation.
- Preparation of Terms of Reference for the required technical studies in consultation with the relevant experts.
- Overall administration of the project office.
- Supervision of the work of the project personnel.
- Identification of bottlenecks to project implementation and find solutions to overcome them.
- Ensure timely implementation of project as per project implementation schedule.
- Provide any assistance and technical guidance as required by the Project Steering Committee.
- Coordinate and lead the project team towards achieving the project objectives.
- Report the progress, issues and challenges to the Steering Committee on a regular basis.
- Prepare the final feasibility report of the project incorporating the reports of other experts
- Any other duties as assigned by the Secretary of the Ministry.

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Project Manager

Qualifications- Degree in Physical/ Biological Science, Agriculture, Geography with postgraduate qualifications in Environmental Science with at least 10 years of experience in a field related to environmental management.

Contract period-Initially for a period of one year –to be extended as required.

The duties of the Deputy Project Director will include the following;

- Assist the Project Director in the overall management of the project.
- Co-ordination with other stakeholders of the project.
- Facilitate meetings of the Steering Committee.
- Monitor progress of the project and report to the Project Director.
- Supervision of project staff.
- Any other duties as assigned by the Project Director.

Project Assistants-2

Qualifications- Degree in Physical/Biological sciences, Agriculture, geography with at least seven years of experience in a field related to environmental management.

Contract Period-Initially for a period of one year –to be extended as required.

Duties of the Project Assistants

- Assist the Project Director and Deputy Project Director in project implementation
- Co-ordination with stakeholder agencies.
- Facilitate meetings with relevant agencies as required.
- Ensure the timely implementation of project work plan.
- Monitor the progress of the project with the work plan and report to the Deputy Project Manager.
- Any other duty assigned by the PD/ DPD

Ecologist

Qualifications-Masters degree in Ecology or a related science. At least 10 years of relevant experience at national or international level with at least five years of experience in leading projects on environmental management and/or Biodiversity Conservation. Proven ability in managing and monitoring of projects relating to Biodiversity Conservation.

Experience in managing and/or designing Biodiversity Parks will be an asset.

Contract Period-Initially for a period of one year-to be extended as required.

GIS Specialist

Qualifications-Degree in Physical, Biological or Social Sciences with at least seven years of practical experience in GIS applications.

Contract period- Initially for a period of one year- to be extended as required.

Sociologist

Qualifications-Masters or higher degree in Social Science or related field. At least ten years of relevant experience with at least five years of experience in leading projects on social development. Experience in projects on social development and proven ability in designing, monitoring and evaluation of development projects.

Contract Period-Initially for a period of two years-to be extended as required.

The sociologist will be expected to collect all available data in relation to population and livelihood patterns and other sociocultural issues in the project area. He/she will be expected to evaluate the positive benefits of the project to the resident population of the area in addition to possible adverse sociological impacts from the project.

Tourism Specialist

Qualifications-A degree with at least ten years experience in the field of tourism development..

Contract Period-Initially for a period of one year-to be extended as required.

The Tourism Specialist will be expected to study the feasibility and long term development of both local and foreign based tourism at the BBP site. He/She will be expected to study the feasibility and profitability of developing the BBP site as a major tourist destination in the Western Province.

Agricultural Specialist

Qualifications-A degree in Agriculture from a recognized university preferably with a Masters Degree and at least ten years of experience in the Agriculture field.

Contract Period-Initially for a period of one year-to be extended as required.

The Agriculture specialist will be expected to study the feasibility of developing agriculture at the BBP site. He/She will identify potential crops suitable for the area and develop a marketing mechanism for such crops. He/she will also be expected to promote organic agriculture and to

popularize organically grown crops among the visitors to the site and to find a marketing mechanism for such crops.

Public awareness and publicity specialist

Qualifications-A degree in biological/physical/social sciences/Humanities with at least ten years experience in the field of public awareness and education.

Contract period- Initially for a period of one year -to be extended as required.

The public awareness and publicity specialist will be expected to conduct awareness programmes regarding the proposed project among residents in the area. His duties will include the creation of a positive outlook among the people in the area regarding the BBP project. He/she will make people aware of all aspects of the project and facilitate the active cooperation of people in the area. He/She will also educate the political authorities of the area as well as government and non government instituitions regarding the project concept.

Legal Officer

Attorney at Law with at least seven years of experience in practicing law.

Contract Period- Initially for a period of one years-to be extended as required.

Duties of the legal officer will include advising the Secretary of the Ministry and the Project Director on all legal requirements to be met by the project during project implementation. The Legal Officer will be responsible for all legal aspects of the project.

Office assistant -2- Contract period-Initial one years –to be extended as required-

Stenographer –Contract period-Initial one years-to be extended as required.

Clerk- Contract period- Initially for one years-to be extended as required.

Peon- Contract period-initially for one years-to be extended as required

.

Driver-Contract period-Initially for one years-to be extended as required.

12. BUDJET AND WORK PLAN

PHASE 1 Budget-Dec. 2010-Dec.2011

1.Specialized Studies-	
Feasibility study and plan for Biodiversity park	US$ 60,000.00
Sociological Survey	US$ 40,000.00
Flood/Drainage Study	US$ 60,000.00
Tourism Study	US$ 20,000.00
Cultural Study	USD 20,000.00
Study on traditional industries	USD 20,000.00
Agricultural Study	US$ 250,000.00
Preparation of site plans	US$ 250,000.00
EIA Studies	US$ 60,000.00
Additional Studies by Technical Agencies Review of specialized studies and compilation	US$ 80,000.00
2. Study Tours and promotional tours	US$ 50,000.00
3.Establishment of Project Office	US$ 20,000.00
4.Purchase of two project vehicles	US$ 150,000.00
5. Key project staff for phase 1(Salary & allowances)	US$ 80,000.00
6. Project Framework finalization-stakeholder consultation	US$ 10,000.00
7. Public awareness/relations activities	US$ 50,000.00
8. Construction of main roads	US$ 500,000.00
9.. Administrative cost	US$ 60,000.00
10. Boundary fencing	US$ 500,000.00
Total	**US$ 2,280,000.00**

PHASE 11 BUDGET-Jan. 2011-Dec. 2013

1. Construction of reservoir, canals & implementation of other flood control measures	US$	1,100,000.00
2.Construction of paddy field	US$	150,000.00
3.Construction of road network	US$	1,000,000.00
4. Construction of temple and meditation caves	US$	75,000.00
5. Establishment of fruit and vegetable farms	US$	250,000.00
6. Flower garden, butterfly garden and Bee keeping	US$	300,000.00
7. Osu Uyana and weda gedara	US$	550,000.00
8. Yam Garden	US$	200,000.00
9. Dairy farm	US$	150,000.00
10. Waste management unit (composting and biogas units)	US$	250,000.00
11. Construction of cultural centre	US$	700,000.00
12. Construction of administrative complex	US$	500,000.00
13. Lightening and electrification of the Park	US$	110,000.00
14. Public relation and promotional activities	US$	75,000.00
15. Establishment of Project Office with full cadre, equipment, vehicles	US$	2,300,000.00
Total		**US$7,710,000.00**

PHASE 111 Budget Jan. 2014-Dec. 2014

Third phase of the project to be implemented by the private sector and relevant Ministries and Departments.

1. Administration cost of Establishment of hotels and accommodation facilities	US$	40,000.00
2. Establishment of trade stalls for organic products	US$	400,000.00
3. Establishment of Handicraft village	US$	350,000.00
4. Establishment of visitor centre and exhibition/education centre and observation tower	US$	1,000,000.00
5. Research centre in collaboration with universities	US$	100,000.00
6. Canal transport project	US$	1,000,000.00
7. Observation towers	US$	500,000.00
8. Site seeing vehicles	US$	200,000.00
7 Salary and maintenance	US$	1,500,000.00
9. Public relations and promotional activities	US$	75,000.00
10. Provision for the operational loss for 2015-2016	US$	750,000.00
Total	**US$ 5,915,000.00**	

(Budget given is cost of project facilitation except for Visitor Centre/Exhibition/Education Centre and Open Air Theatre)